IN THE CLAIMS

1. (previously presented) An improved reaction chamber for an epitaxial reactor comprising a belljar having a shoulder and made of insulating and transparent material, a susceptor provided with disk-shaped cavities for receiving wafers of material to be treated and having an insulating and chemically resistant flat plate arranged above it, comprising:

a diffuser formed by a cap supplied by a central dome-piece connected to a symmetrical annular distribution chamber having a plurality of pipes of the same length which connect said annular chamber of the cap to a dome zone of the belljar situated just underneath a neck connecting an upper flange to the dome, said plurality of pipes ensuring a uniform distribution of flow at a lower speed;

a cylindrical zone of the belljar extended above the flat plate supported above the susceptor so as to eliminate any interference between the flat plate and shoulder;

a minimum internal diameter of the belljar so as to keep the belljar as far away as possible from the susceptor; and

on the corners of the susceptor, in its upper zone, projecting baffles inserted into recesses formed in the body of the said susceptor, said baffles extending longitudinally at half the height of the susceptor;

wherein the cap of the diffuser is fixed to an annular flange which is in turn fixed to an upper thickened flange of the belljar by means of a pair of two half counter-flanges gripping the annular flange against the upper thickened flange of the belljar; and

wherein the fixing of the cap of the diffuser to the annular flange is performed by means of a plurality of spring-loaded tie-rods which push in an elastic manner the cap against the annular flange.

2. (cancelled)

3. (cancelled)

4. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 2 wherein the cap is closed at the top by a flange terminating in a dome-piece communicating with a sleeve for connection to an external source of gas to be used in the same reaction chamber,

which dome-piece is provided with a bottom defining at least one circular slit for ensuring a rigorously uniform distribution of gas to an annular chamber for supplying the plurality of pipes emerging from the distributor inside the belljar.

5. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 4 wherein in addition to the slit in the bottom, a further annular slit helps ensure the uniform distribution of gas to the annular chamber supplying the outlet pipes.

6. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 4 wherein the cap of the distributor comprises an internal chamber for the flow of a cooling fluid.

7. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 4, characterized in that the outlet pipes are made of a material which is chemically inert with respect to the gas used in the belljar.

8. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 7 wherein the outlet pipes are made of glass.

9. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 7 wherein the outlet pipes are made of ceramic material.

10. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 7 wherein the outlet pipes are made of quartz.

11. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 1 wherein the baffles fixed to the susceptor are made of material chemically inert with respect to the gases used in the said chamber.

12. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 11 wherein the baffles fixed to the susceptor are made of glass.

13. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 11 wherein the baffles fixed to the susceptor are made of ceramic material.

14. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 11 wherein the baffles fixed to the susceptor are made of quartz.

15. (previously presented): The improved reaction chamber for an epitaxial reactor of Claim 11 wherein the baffles fixed to the susceptor are made of graphite lined with silicon carbide.

16. (currently amended) A reaction chamber for an epitaxial reactor comprising:

a belljar;

a susceptor inside the belljar; and

a diffuser disposed on the top of the belljar;

the belljar being made of insulating and transparent material and having an upper flange, the flange joined to a neck, ~~a shoulder~~the neck joined to a flat zone, the flat zone joined to a shoulder, and the shoulder joined to a cylindrical zone ~~joined to the shoulder~~;

the susceptor comprising a body shaped like a truncated pyramid, the susceptor being provided with disk-shaped cavities for receiving wafers of material to be treated, and supporting an insulating and chemically resistant flat plate above it, the flat plate facing the flat zone of the belljar;

the diffuser being formed by a cap supplied by a central dome-piece connected to a symmetrical annular distribution chamber having a plurality of pipes of the same length which connect the annular chamber of the cap to a dome zone of the belljar situated just underneath its neck, the plurality of pipes feeding gases into the ~~into the~~ belljar and ensuring a uniform distribution of gas flow at a lower speed;

wherein the internal diameter of the cylindrical zone of the belljar is sized to keep the belljar at a distance from the susceptor; and ~~wherein the flat plate is so arranged as to deflect gases coming from the plurality of pipes~~

wherein the flat plate is arranged to deflect gases coming from a vertical direction from the plurality of pipes and to guide the gases into a horizontal direction between the flat plate and the flat zone until the end of the flat plate where the gases flow vertically downward to the susceptor for improved deposition.

17. (previously presented) The reactor chamber of claim 16, wherein the susceptor body has an upper zone and a lower zone, wherein the susceptor body has a plurality of lateral corners, and wherein in the upper zone of the susceptor body projecting baffles are inserted in the susceptor body along the lateral corners, said baffles having a length about half the height of the susceptor body.

18. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 16 wherein the cap of the diffuser is fixed to an annular flange which is in turn fixed to an upper thickened flange of the belljar by means of a pair of two half counter-flanges gripping the annular flange against the upper thickened flange of the belljar.

19. (currently amended) ~~The improved reaction chamber for an epitaxial reactor of Claim 18~~ A reaction chamber for an epitaxial reactor comprising:

a belljar;

a susceptor inside the belljar; and

a diffuser disposed on the top of the belljar;

the belljar being made of insulating and transparent material and having an upper flange, the flange joined to a neck, a shoulder joined to a flat zone and a cylindrical zone joined to the shoulder;

the susceptor comprising a body shaped like a truncated pyramid, the susceptor being provided with disk-shaped cavities for receiving wafers of material to be treated, and supporting an insulating and chemically resistant flat plate above it, the flat plate facing the flat zone of the belljar;

the diffuser being formed by a cap supplied by a central dome-piece connected to a symmetrical annular distribution chamber having a plurality of pipes of the same length which connect the annular chamber of the cap to a dome zone of the belljar situated just underneath its neck, the plurality of pipes feeding gases into the into the belljar and ensuring a uniform distribution of gas flow at a lower speed;

wherein the internal diameter of the cylindrical zone of the belljar is sized to keep the belljar from the susceptor; and wherein the flat plate is so arranged as to deflect gases coming

from the plurality of pipes;

wherein the cap of the diffuser is fixed to an annular flange which is in turn fixed to an upper thickened flange of the belljar by means of a pair of two half counter-flanges gripping the annular flange against the upper thickened flange of the belljar;

wherein the fixing of the cap of the diffuser to the annular flange is performed by means of a plurality of spring-loaded tie-rods which push in an elastic manner the cap against the annular flange.

20. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 18 wherein the cap is closed at the top by a flange terminating in a dome-piece communicating with a sleeve for connection to an external source of gas to be used in the same reaction chamber, which dome-piece is provided with a bottom defining at least one circular slit for ensuring a rigorously uniform distribution of gas to an annular chamber for supplying the plurality of pipes emerging from the distributor inside the belljar.

21. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 20 wherein in addition to the slit in the bottom, a further annular slit helps ensure the uniform distribution of gas to the annular chamber supplying the outlet pipes.

22. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 20 wherein the cap of the distributor comprises an internal chamber for the flow of a cooling fluid.

23. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 20, characterized in that the outlet pipes are made of a material which is chemically inert with respect to the gas used in the belljar.

24. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 23 wherein the outlet pipes are made of glass.

25. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 23 wherein the outlet pipes are made of ceramic material.

26. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 23 wherein the outlet pipes are made of quartz.

27. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 16 wherein the baffles fixed to the susceptor are made of material chemically inert with respect to the gases used in the said chamber.

28. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 27 wherein the baffles fixed to the susceptor are made of glass.

29. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 27 wherein the baffles fixed to the susceptor are made of ceramic material.

30. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 27 wherein the baffles fixed to the susceptor are made of quartz.

31. (previously presented) The improved reaction chamber for an epitaxial reactor of Claim 27 wherein the baffles fixed to the susceptor are made of graphite lined with silicon carbide.

32. (new) A reaction chamber for an epitaxial reactor comprising:

a belljar made of an insulating and transparent material, the belljar comprising an upper flange joined to a neck, a shoulder joined to a flat zone and a cylindrical zone joined to the shoulder;

a susceptor disposed inside the belljar, the susceptor comprising a truncated pyramid-shaped body and having disk-shaped cavities for receiving wafers of material to be treated;

an insulating and chemically resistant flat plate supported by the susceptor, the flat plate facing the flat zone of the belljar;

a diffuser disposed on the top of the belljar, the diffuser being formed by a cap supplied by a central dome-piece connected to a symmetrical annular distribution chamber having a plurality of pipes of the same length which connect the annular chamber of the cap to a dome zone of the belljar situated just underneath its neck, the plurality of pipes feeding gases into the into the belljar and ensuring a uniform distribution of gas flow at a lower speed;

wherein the internal diameter of the cylindrical zone of the belljar is sized to keep the belljar from the susceptor; and wherein the flat plate is so arranged as to deflect gases coming from the plurality of pipes to absorb vertical energy imparted into the gas flow and wherein the gases on the flat plate flow in a horizontal direction until an edge of the flat plate.